

# AMATEUR SATELLITE REPORT

AMSAT's Newsletter for the Amateur Space Program.



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## Member Drive Winners Told

AMSAT Headquarters has announced the winners in the first-ever member recruitment contest. The six-month campaign netted 370 new members according to General Manager Bill Lazzaro, N2CF. Prizes were shipped the week of January 16. The winners, their scores and prizes are shown in the box accompanying this article.

The contest period ran from July 1 through December 31. Prizes ranged from an option-laden grand prize all-mode vhf/uhf transceiver, the FT-726R from Yaesu worth nearly \$1400 to prizes for as few as one new member signed. In all, nearly \$3000 in prizes were donated by manufacturers and distributors of amateur satellite-related equipment.

Individuals who participated in the contest should call or write AMSAT soon to claim their prize. (Does not include those whose callsign appears in the box; their prizes have already been shipped!) As explained in ORBIT No. 14, page 28, the following prizes are yours if you participated but did not garner one of the main prizes.

For one point you earned either your name in space or an AMSAT callsign badge. For two points you can choose either an AMSAT T-shirt or belt buckle. Three points gets

you either a credit at the AMSAT Software Exchange or a copy of K2UBC's new book *Satellite Experimenters' Handbook*. For four points or more you can choose either a year's AMSAT membership or a year's ASR subscription. Please claim your prize promptly.

According to N2CF, the recruitment drive will be repeated later this year with a kick-off announcement expected in the next few weeks. He wants to have the contest period bridge the peak of the hamfest and convention season to afford the broadest possible exposure and opportunity for this contest reprieve.

AMSAT congratulates the winners and all the participants who made this premier effort a huge success. The big winners may be the new members who've just joined the most exciting activity in Amateur Radio today.

A special note of thanks and sincere appreciation to the very special group of manufacturers and dealers who, without so much as an arm-twist, practically leaped on the bandwagon to make this effort the most successful campaign of its kind to date. Our hats are doffed to you truly fine (and visionary) folks! Thanks! You made it work.

Place	Call	Score	Prize			
			Manufacturer	Model	Function	Donor
1	N3CEG	71	Yaesu	FT-726R	All-mode vhf/uhf transceiver	Yaesu-Musen
2	KW2U	68*	Mirage	D-1010N	70cm 100-watt amplifier	Mirage
3	WD4FAB	20	Microwave Modules	MMX-1268-144	2m to 23cm xmit conv., 2w	Spectrum International
4	WA6VGS	18	Astron	VS-35M	35A metered dc pwr supply	KJI Electronics
5	K8OCL	16	KLM	2M-14C	2m crossed Yagi	KLM
6	W3LOY	13	Lunar	PAG-144-2	2m GaAsFET preamp.	Lunar
7	WB5PMR	12	Adv. Rec. Research	P144VDG	2m GaAsFET preamp.	Adv. Rec. Research
8	K8MU	9	KLM	435-18C + CS2	70cm crossed Yagi & pol. sw.	KLM
9†	W6ISO	8	Lunar	PAI-144-2	2m preamp.	Lunar
9†	W3IWI	8	KenPro	KP-145G	Mast 2m GaAsFET preamp.	Spectrum West
11††	KO5I	7	Mutek	SLNA-144S	2m in-line preamp.	VHF Shop

**Notes:** \* final score is 68<sup>1</sup>/<sub>12</sub> points with <sup>1</sup>/<sub>12</sub> point for family members.

† Tie for ninth place.

†† Bonus prize donated by the VHF Shop!



## Short Bursts

- Keplerian element data will be available from AMSAT HQ for an SASE. Henceforth HQ will be unable to respond to telephone request for this data. It is just too time-consuming for our budget-strapped office staff to accommodate easily.
- The RS satellites should now be on full-period according to G3IOR.
- A Clipperton DXpedition which includes AO-10 operation was discussed recently at the Northern California DX Club Meeting. Watch for further details on this exciting project!
- An exciting AMSAT awards program is taking shape. This one will be a delight to all and should encourage more activity and new members. Announcements are expected next month.
- Nearly 10 percent of all the calls worked by W5LFL from STS-9 were active AMSAT Members. Nice going, guys!
- W8DX and WH6AMX have sent their DX scorecards for tally by ASR. So far, W8DX leads the field with 60 claimed countries worked. Send yours in yet?
- UA3CR, nominal head of the Russian Amateur Satellite Project Committee recently conveyed congratulations for AMSAT OSCAR 10's performance to W3IWI and AMSAT via N4AR. Bill, N4AR, had chatted with Leo for a half hour recently on an early morning cw QSO via AO-10.
- ORBIT Magazine Editor KB2M is actively seeking advanced technical articles for ORBIT as well as construction and general interest articles. Send your manuscripts to Harold Winard, KB2M, P.O. Box 575, Wharton, NJ 07885.
- ORBIT Magazine #16 has been mailed.
- Net Manager W8GQW is vacationing in Arizona for the winter. His slot on the nets will be absorbed until his return by KO5I, N4HY, and N3AR.
- DJ4ZC reports having worked about 50 stations from his vacation QTH on Tenerife, EA8.
- Planning a convention talk or flea market booth for AMSAT this spring? Contact HQ early (now is okay) to arrange support for your event. Handouts, information and support kits available if you act soon.
- KA6M is the latest to join the packet crowd on AO-10 SSC L1 (145.830). A tentative sked is held Sundays at 1700 UTC.

## Project OSCAR Annual Meeting is Held

President John Pronko, W6XN, of the Project OSCAR group reports on the Annual Meeting which was held on 14 January at Foothill College, Los Altos, California. The

meeting was held between 2 and 5:30 P.M. with 37 members attending.

W6XN reported on Project OSCAR Prediction Calendars. He was followed by WB6JNN who presented a Syncart progress report. KA6M told of packet activity on AO-10. W6SP detailed current and future AMSAT projects. N6TX reported on the W5LFL Ham-in-Space mission.

Election of Board members was followed by election of Officers. Incumbents were all re-elected. The Officers are:

President, John Pronko, W6XN

Secretary, Nick Marshall, W6OLO

Treasurer, Gil Morris, WB6KCG

Chairman of the Board, John Browning, W6SP

Technical Director, Jim Eagleson, WB6JNN

W6XN reports that lively discussion permeated the entire meeting!

## GAS Can Help Sought

A cannister containing a set of experiments designed by high school students is scheduled to be sent up on the space shuttle on June 4. Unfortunately the group sponsoring this project has run into problems with the person in charge of the controller board. They are in desperate need of someone who can donate the material and the time to produce a simple controller board. The controller must turn devices on and off, based on the current time, or the temperature. I figure they need some kind of cpu, an a-to-d converter, some kind of temperature sensor, and a multiplexer.

What they can offer are some limited funds for hardware, a limited amount of travel money to the shuttle launch, hotel accommodations at the launch for two people, VIP tickets into the launch area for the takeoff and, if there is any TV coverage, they will mention you and your companies' name.

There is about 60 days left to get this controller programmed and tested. If you cannot help, but know of an off-the-shelf controller that would do what is needed, I would like to hear from you also. Please write to WA2LQQ, P.O. Box 177, Warwick, NY 10990

## New Bulletins Favorably Received

A new service developed ad hoc on AMSAT OSCAR 10 is drawing favorable remarks from those who've heard the effort of W6KAG and W6CG. Bud Schultz, W6CG, has for several years been holding regular Saturday nets on 10 meters (lately on 15 meters) primarily in service to New Zealand, Australia and the Pacific basin area. The Southwest Pacific AMSAT information Net has provided key information to hundreds in its tenure.

Now in an effort to better serve a wider community yet, W6CG has teamed with Butch Mason, W6KAG, to relay Bud's bulletin service abroad via AO-10. The result to date has been a very effective service according to those who have listened in on the interim downlink frequency of 145.957 MHz, Mode B. The location on the AMSAT Calling and Net Frequency (ACNF, 145.957) is a preliminary step until coordination for use of one of the so-called Special Service Channels (SSCs) is complete. The SSCs were



established precisely for the kind of service now being provided by W6KAG and W6CG, according to AMSAT sources.

In the present arrangement, W6KAG tape records W6CG and later transmits the audio to AO-10 from a 20-minute continuous loop tape. Both W6KAG and W6CG are retired and thus have the time to devote to this valuable public service. Both are located in the Los Angeles environs. Butch is in Rancho Palos Verdes and Bud in Anaheim.

The present schedule of transmissions is as follows according to W6CG: On Mode B days (Sun., Mon., Tue., Thur., Fri.), the bulletins will be transmitted from one hour prior to, through one hour subsequent to AO-10 apogee whenever that apogee occurs between 60 and 180 degrees West longitude. On Mode L days (Saturday and Wednesday UTC), the bulletins will be transmitted from two hours through one hour prior to apogee and from one hour through two hours subsequent to apogee whenever that apogee occurs between 60 and 180 degrees West longitude. In other words, on Mode B days, the bulletins straddle apogee. On Mode L days, the bulletins straddle Mode L times which themselves straddle apogee.

## **PACSAT Presentation Stimulates College Interest**

Returning from a trip to England's University of Surrey, home of UoSAT B and UoSAT OSCAR 9, AMSAT's Assistant Vice President Harold Price, NK6K, found time to stop off at Morgantown, West Virginia. The occasion was a meeting of the Institute of Electrical and Electronic Engineers (IEEE) at West Virginia University and NK6K was the featured speaker.

On Thursday evening, 19 Jan., Harold was joined by N2CF at West Virginia University, a four hour drive west from Washington, D.C., for this important talk. As is often the case with NK6K's presentations, this one was both informative and entertaining. AMSAT officials were hosted by the Chairman of the Electrical Engineering Department, Dr. Roy Nutter, N8BHI.

The one hour presentation was enthusiastically received by about 50 students and faculty on a blistery, cold evening. Viewgraphs supported the verbal description of the PACSAT project.

PACSAT, the forerunner of a family of digital, store-and-forward satellites, is a joint project of AMSAT and VITA, the Volunteers In Technical Assistance. A 1985 or 1986 launch opportunity from a Get Away Special (GAS Can) on a future Shuttle is being sought.

General Manager N2CF explained to ASR that AMSAT views the nation's university and college system as a virtual boundless reservoir of engineering talent searching for worthwhile projects. The West Virginia opportunity is a "very promising situation" says N2CF. "We hope to promulgate the idea of participation in amateur satellite projects to numerous other universities," he added.

Weber State College in Utah is building a satellite under the experienced hand of Gil Moore of Thiokol. Gil has played a key role in past AMSAT activities in connection with the Thiokol kick motors.

The West Virginia University group was particularly interested in participating in development of the digital equip-

ment and propulsion system. Many are licensed radio amateurs, with a double interest in the project: Engineering and Amateur Radio.

AMSAT is keenly interested in developing relations with universities and colleges through engineering faculty and students who are licensed amateurs. Interested individuals should contact Bill Lazzaro, N2CF, General Manager at 301-589-6062 or write AMSAT, P.O. Box 27, Washington DC 20044.

The West Virginia presentation was arranged by AMSAT Chairman John Browning, W6SP, who is a West Virginia University alumnus (BSEE, '49). On a trip to his home last Spring he met Dr. Jerry Finucci, K8JF, Professor of Aerospace Engineering and arranged for the presentation. Another helping was Dr. Mike Palmer, K8LG. W6SP had hoped to be at the presentation Thursday but irrevocable business commitments precluded the trip.

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### **AMSAT-OSCAR 10 Apogee**

Sat 28 Jan 84	01:54:35	22.3N	121.3E
Sat 04 Feb 84	08:47:47	22.7N	11.7E

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Satellite: oscar-9
Catalog number: 12888
Epoch time:      84009.09096800
      Mon Jan  9 02:10:59.635 1984 UTC
Element set:      569
Inclination:      97.5719 deg
RA of node:       341.5961 deg
Eccentricity:     0.0001926
Arg of perigee:   351.4572 deg
Mean anomaly:     8.6588 deg
Mean motion:     15.24107802 rev/day
Decay rate:       3.186e-05 rev/day^2
Epoch rev:       12514
Semi major axis:  6868.570 km
Anom period:      94.481506 min
Apogee:           492.211 km
Perigee:          489.566 km
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Satellite: oscar-10
Catalog number: 14129
Epoch time:      84006.04613855
      Fri Jan  6 01:06:26.371 1984 UTC
Element set:      72
Inclination:      25.7991 deg
RA of node:       222.1033 deg
Eccentricity:     0.6085129
Arg of perigee:   234.5595 deg
Mean anomaly:     52.5704 deg
Mean motion:     2.05853567 rev/day
Decay rate:       -7.9e-07 rev/day^2
Epoch rev:       425
Semi major axis:  26105.783 km
Anom period:      699.526377 min
Apogee:           35616.033 km
Perigee:          3844.621 km
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Satellite: rs-5  
 Catalog number: 12999  
 Epoch time: 84012.04300232  
 Thu Jan 12 01:01:55.400 1984 UTC  
 Element set: 140  
 Inclination: 82.9565 deg  
 RA of node: 228.6352 deg  
 Eccentricity: 0.0011580  
 Arg of perigee: 65.8132 deg  
 Mean anomaly: 294.4149 deg  
 Mean motion: 12.05042100 rev/day  
 Decay rate: 4e-08 rev/day^2  
 Epoch rev: 9101  
 Semi major axis: 8033.890 km  
 Anom period: 119.497900 min  
 Apogee: 1682.576 km  
 Perigee: 1663.970 km

Satellite: rs-6  
 Catalog number: 13002  
 Epoch time: 84008.06605693  
 Sun Jan 8 01:35:07.319 1984 UTC  
 Element set: 71  
 Inclination: 82.9596 deg  
 RA of node: 224.0269 deg  
 Eccentricity: 0.0050499  
 Arg of perigee: 343.1632 deg  
 Mean anomaly: 16.7752 deg  
 Mean motion: 12.13557899 rev/day  
 Decay rate: 4e-08 rev/day^2  
 Epoch rev: 9117  
 Semi major axis: 7996.238 km  
 Anom period: 118.659357 min  
 Apogee: 1660.240 km  
 Perigee: 1579.480 km

Satellite: rs-7  
 Catalog number: 13001  
 Epoch time: 84007.53970377  
 Sat Jan 7 12:57:10.406 1984 UTC  
 Element set: 139  
 Inclination: 82.9560 deg  
 RA of node: 228.1470 deg  
 Eccentricity: 0.0022468  
 Arg of perigee: 5.3765 deg  
 Mean anomaly: 354.7537 deg  
 Mean motion: 12.08675623 rev/day  
 Decay rate: 4e-08 rev/day^2  
 Epoch rev: 9074  
 Semi major axis: 8017.771 km  
 Anom period: 119.138665 min  
 Apogee: 1657.825 km  
 Perigee: 1621.796 km

Satellite: rs-8  
 Catalog number: 12998  
 Epoch time: 84005.54938692  
 Thu Jan 5 13:11:07.299 1984 UTC  
 Element set: 258  
 Inclination: 82.9586 deg  
 RA of node: 233.7424 deg  
 Eccentricity: 0.0019431  
 Arg of perigee: 125.0161 deg  
 Mean anomaly: 235.2706 deg  
 Mean motion: 12.02939653 rev/day  
 Decay rate: 3e-08 rev/day^2  
 Epoch rev: 9007  
 Semi major axis: 8043.254 km  
 Anom period: 119.706753 min  
 Apogee: 1694.867 km  
 Perigee: 1663.609 km